

Amendments to the Claims

The listing of claims below will replace all prior versions and listings of claims in the present application.

Claim Listing

1-35. (Cancelled)

1 36. (Previously Presented) An apparatus for printing holographic stereograms,
2 comprising:
3 a light source that produces a coherent beam;
4 a beam splitter that splits the coherent beam into an object beam and a reference
5 beam;
6 a material holder holding a holographic recording material having elemental
7 holograms;
8 an object beam unit, including a removable band-limited diffuser, for displaying a
9 rendered image and for conditioning the object beam with the rendered
10 image to interfere with the reference beam at a chosen elemental
11 hologram, wherein the removable band-limited diffuser includes a
12 deterministic phase pattern designed to diffuse light in at least one of a
13 specific pattern and a specific direction, and wherein the removable band-
14 limited diffuser is designed for a wavelength corresponding to a
15 wavelength of the coherent beam;
16 a removable masking plate located in the path of the reference beam and
17 proximate to the holographic recording material, wherein the removable
18 band-limited diffuser and the removable masking plate form a matched set
19 configured to allow exposure of a particular size hogel; and
20 a computer programmed to control the interference of the object beam and the
21 reference beam and the delivery of the rendered image to the object beam
22 unit.

1 37. (Original) An apparatus for printing holographic stereograms as in claim 36,
2 the removable masking plate having at least one positioning adjustment device.

1 38. (Original) An apparatus for printing holographic stereograms, as in claim 36,
2 the removable band-limited diffuser having at least one positioning adjustment device.

1 39. (Previously Presented) An apparatus for printing holographic stereograms,
2 comprising:
3 a light source that produces a coherent beam;
4 a beam splitter that splits the coherent beam into an object beam and a reference
5 beam;
6 a material holder holding a holographic recording material having elemental
7 holograms;
8 an object beam unit for displaying a rendered image and for conditioning the
9 object beam with the rendered image to interfere with the reference beam
10 at a chosen elemental hologram;
11 a voxel-control lens located in the path of the object beam and proximate to the
12 holographic recording material, the voxel control lens being capable of
13 varying the size of at least one voxel and being capable of making the
14 rendered image displayed by the object beam unit as seen from the
15 viewpoint of an elemental hologram appear at a greater apparent distance
16 relative to the holographic recording material; and
17 a computer programmed to control the interference of the object beam and the
18 reference beam and the delivery of the rendered image to the object beam
19 unit.

1 40. (Original) An apparatus for printing holographic stereograms as in claim 39,
2 wherein:
3 the object beam unit includes a SLM for displaying the rendered image; and
4 the voxel-control lens has a focal length about equal to the distance between the
5 voxel-control lens and the SLM.

1 41. (Original) An apparatus for printing holographic stereograms as in claim 39,
2 wherein:
3 the object beam unit includes a SLM for displaying the rendered image; and
4 the voxel-control lens has a focal length about equal to the distance between the
5 voxel-control lens and the image of the SLM.

42-56. Cancelled

1 57. (Currently Amended) A method of printing a holographic stereogram with
2 elemental holograms, comprising the steps of:
3 selecting an elemental hologram;
4 generating a coherent light beam;
5 splitting the beam into an object beam and a reference beam;
6 rendering an image;
7 conditioning the object beam with the rendered image, the conditioning of the
8 object beam including the step of passing the object beam ~~though~~ through
9 a voxel-control lens, the voxel control lens being capable of varying the
10 size of at least one voxel and being capable of making the rendered image
11 as seen from the viewpoint of an elemental hologram appear at a greater
12 apparent distance relative to the holographic recording material;
13 interfering the conditioned object beam with the reference beam at the selected
14 elemental hologram.

58-63. Cancelled

1 64. (Previously Presented) The apparatus of claim 36 wherein each of the
2 removable band-limited diffuser and the removable masking plate are located in
3 respective positions such that the removable band-limited diffuser can be replaced with a
4 second band-limited diffuser and the removable masking plate can be replaced with a
5 second removable masking plate, wherein the second band-limited diffuser and the
6 second removable masking plate allow recording of at least one of a larger elemental

- 7 hologram, a smaller elemental hologram and a differently shaped elemental hologram.